Figure 1. Diagram of the paralogue cluster

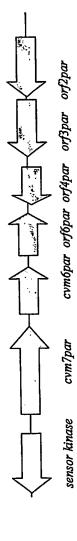


Fig.2 Orientation of cvm7 to published cvm cluster

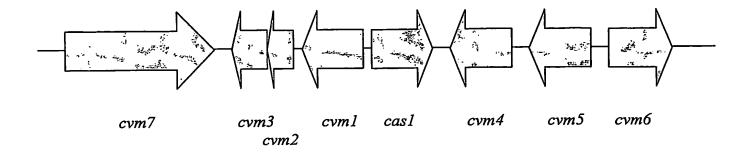


Fig 3. Annotated sequence of the paralogue cluster

	80	160	240	320	400	480	260	640	720	800	880	960	1040	1120	1200	1280
- 80 -	ccgaccgccg	gtcaggcgga	gccgacgagg	gggtggccac	gcggcggtct	ggccttgagc	ენნენნენნე	gtgcgcaccc	gtcggcggcg	gttcggtgaa	cacagttgtc	cgaggacacg	gcggtacctg	taacggccga	tgccgcccgc	gggtgttcgc
1 70	ctgccgggtg	gaggggcagt	ggtcggtgag	cgtccgtccc	ggcgtagtac	gccgggccag	agttcgtcga	cagttgcacg	ggcgggcggt	gtggccacca	gagcgcgccc	aggccgggcc	cggccgccgg	gttgggctcg	ccttcggcgg	acacgtgcct
09 -	ggtagtcccc	cctgctgggt	gcctccaccc	cgcggatgcc gacgtggagc cgtccgtccc gggtggccac 320	ttggtcaggg cctcggagac ggcgtagtac gcggcggtct 400	ccggaccggg atggcggagc gccgggccag ggccttgagc 480	tgccccgggc gacctcccgg agttcgtcga cggcggcggc	toggogtoga goggoaccga cagttgcacg gtgcgcaccc 640	tcgatacggc	ggcgatggcg	acgccacgct	ccgacgacgg	gtgcacattc	gcgacataca gggcggttcc gttgggctcg taacggccga	ggcgaccgcg gcgaacacct ccttcggcgg tgccgcccgc 1200	ccgcagctcc
1 50	gccgctagct	81 gggcggtccc gggtgcggcg gccggat <u>cta</u> gtcggtgtgc tccgacggtg cctgctgggt gagggcagt gtcaggcgga 160	161 tggtggttcc cgcgccgggc gggctgtgca gccgcagttg gccgccgagt gcctccaccc ggtcggtgag gccgacgagg 240	cgcggatgcc	ttggtcaggg	ccggaccggg	tgcccgggc	tcggcgtcga	caggtcgcgt tcgatacggc ggcgggcggt gtcggcggcg 720	721 gcgacgatcc gggcccgtga cgcggtgagg gccgcctgcg tctccgcgtt ggcgatggcg gtggccacca gttcggtgaa 800	801 gccggccagc cggtcctcgg tgtccgacgg catcggcttg tcgttcatcg acgccacgct gagcgcgccc cacagttgtc	ccactccttg ccgacgacgg aggccgggcc cgaggacacg 960	acaccagggt gtgcacattc cggccgccgg gcggtacctg 1040	gcgacataca	ggcgaccgcg	1201 gegaccayyy tegecaegeg eegeagegee geetgeteet eggeggeeee eegeagetee acaegtgeet gygtgttege 1280
- 40	cggccgccat	stop semsor gtoggtgtgc	gccgcagttg	cggccgtcgt	cttggcggcg	ggatgtcgag	gccgggtgga	gatcagctcg	641 gcagcgccag ggagaccagg cgctgttggg ggccgtcgtg	gccgcctgcg	catcggcttg	cgcggaatcc	961 gccgcgtagt cgtcgatccg cgccgggcag cccgactcga	ggtccaggcg	cggcctcggc	gcctgctcct
30	tgcgcctccc	gccggatcta	gggctgtgca	241 cccgagcccc ggcagggggc ggcgccaccg cggccgtcgt	321 atggacgtcg acgacggtgg caccggagtg cttggcggcg	401 cgaccggttc ggggtggcgt tccccggtct ggatgtcgag	481 gccgggcgga gtccgccctc ggcgagtacc gccgggtgga	561 cagcccgtcg gtcacctcgt cgagctgccg gatcagctcg	cgctgttggg	cgcggtgagg	tgtccgacgg	881 cgtcgacgtt gatcggcatg cacaccgtgg cgcggaatcc	cgccgggcag	1041 gataccggcg ggaaaatcac ggccggtcct ggtccaggcg	1121 ggaccgcgaa gtcggccgag aggagctgtc cggcctcggc	ccgcagcgcc
1 20	agcatcgcag	gggtgcggcg	ენნნეენენე	ggcagggggc	acgacggtgg	ggggtggcgt	gtccgccctc	gtcacctcgt	ggagaccagg	gggcccgtga	cggtcctcgg	gateggeatg	cgtcgatccg	ggaaaatcac	gtcggccgag	tegecaegeg
9 -	ccatgggagc	gggcggtccc	tggtggttcc	cccgagcccc	atggacgtcg	cgaccggttc	gccgggcgga	cagcccgtcg	gcagcgccag	gcgacgatcc	gccggccagc	cgtcgacgtt	gccgcgtagt	gataccggcg	ggaccgcgaa	gcgaccaggg
	1	81	161	241	321	401	481	561	641	721	801	881	961	1041	1121	1201

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eggcaegceg acgaeegaae cGAAGCCGCG CGCCCTGGCG 1440 rescences resastsee seccenter carcarers 1760 GATGACGCCC GCATACCGGG TATCACGGCA CATCAGCATG 1840 GGCGAIGCGG AAGCCGAICG IICCCAGIAC IICIGGGAAG 2080 ACGCAGAGAA GAICGGATAC GCAGTGTACG AGTGCAGCGA 2320 CCGTCCATCA CCGTCCTGGG CTGTCTGGGC GTACGCGCCG 2400 tcctcggtgt cgggcggcag cggttccgcg gtcagcgaga 1360 rcceeccee ccecccerc rcceacacca ecercaccac 1520 AGCGGGCCGT GCAGACTTCT GGACCAGCCG CCGACGGCGC.1600 1601 TOGCCATGCC GTCCGGATCG AGCCTGATGA TTCCGGTCAC ATCGTTGCCG AGCAGTTCTC CGACTTCGGC GGCGACCGTC 1680 CGGCAACACG CGTCCGGAAT CAGCCCCCGG AACGGCGGGA 1920 GAATCCGCCC TGACCTCGGG AGTTTGCAGC TAGCTGGAAT 2000 GACGACGCTG CGGGTTCTCC ACGGGGGAGA GATCCGCGAA 2160 GAAGAGTTCG CCCGGTGTCC GGACCCGCGC GGCAACGTCC 2240 CGTTTTCGCC CTGCTGCTCA TCAACGCGGG CAGTGTGGTG 2480 2481 CCGGTCGACt cgatcgtctt ccgtatctgg ggcaactcac caccgggcgc ggtcaccgcg acgctccagt cctatgtgtc 2560 1281 gatggcggtg gccacgaggt cggtgaaacc ggccagccgg 1521 GTTCCGGCCG TCGGGGTCCA CCCGGGTGCC GATGGGGAAG 1761 Trescaceae aceaeceere ceasedeece enaceecece 1841 ACGICCCCC TGAACGCCCG TCAACGIGGC CCGCCGGAGI 2081 recercecee AGAGTCGGTC CGCTTCCCCG AGTGGGCCGC 2161 cceccaage accreccere reseacerer researcea 2241 CCACCGCGCT CTGTCATCAG CGCCGTCGGC GCCGTCAGCC 2321 reaggreer cacgacgree ecgecergee gggreegea 2401 ACGCCCGAA ACTGGAGCTG GCCCTCCGC GTCAGCGGGC tegecateat caegeceeae ageegteeet egaegttgat 1681 GCGAACATCT GTTCCGGTGG GGTGGCCCTG GCCACCAGGG .1921 ccercriccr ccerccecce ceesecacre ceccecece 1441 AAGTCGCCG GTGCCCCGGA CGACTCGGCG GCGTCGTCGA 2001 CAGCGGTTCG GGTTGGTGGG AAGGGATGTT GGCCGCTGGC



3360 ggttcgacac ccgaactgct gcaccagccg ccgggctaca 2640 tgctgagctg gggcgggaca ccgtacgagg agctgagcgc 2800 ceecceece eccereace rereserce ecacacce 3200 receeerc eraccece coerraces ceargrere 3440 GCAGACCCT CCGGGGCGAG CCGGTCCACG GGGGCGCGCA 3520 cgtcgtcggc gaggcgggca gcggcaagac ccggctcctc 3680 tctggggcgtc ctgttcggag agtgaggacc ggcccgacta 3760 tggccggaac gtatgcacgg attccccggt tggctgcggc 3840 acaggggccg cactccccg acgggggcga ggagaacagc 3920 ctccggctgg gcgccgtgga gacatgggcg cactgctgtc 2880 GCCGGAGGTG CAGCGCAATC CGCTGCGGGA GCGGCTGATC 2960 GCGCTGCACG CGGCGATCCT GCGTCAGGAC AACGGTCTGG 3120 rccceeeec eareaceare ececeeece ceeeececec 3280 GGCTCCGGCT CCGGCTCCG CTCCGCTCCT GCGTCGGTTC Trcsrceec ececcacea corpegegt etgetggagt CGGACGCGCT CAGGACGTAC GAGGCGACGC GGCGGGCCCT tgagcaggcc atcaggacag ggcgccggct ctcgcgcgag 2561 ccggctgcgg aaactcctgg ccgagtgtgt gctcccggac 3601 ccgcgacgtc cgcgttccac acctcggggc gggtggcgtt cgaaccgttt 2721 gagcagcacc aggaggcgcg ggccgtgctc tgccaggccc 2801 gtacgacttc gccgtccagg aggccaatcg gctggagcag 2881 tgcggctggg gcgggacgag gaggTGATGG ACCAGCTCAA 2961 GGGCAGCTCA TGCAGGCGCA GTACCGGCTG GGGTGCCAGG GECCGAGGAG CTGGGGACCG ATCCGGGCAA GGAGCTGGCG 3121 Accecercer ccceccerc ececcecer cecceeeer rceaseccer reacecescc sersecesses cesecesses 3361 CCACCTICIT ICCCGCCICC GITICIGGCI CGCCGICCGI 3441 GGCCCGGGT CCGCTTTCGG GTCCGTGGCG CTCCACCGGC GGGGATGCGC ACCGGGCAGG TGTTCCCCAC GCTGCCGCCG 3681 tecgagttgg agegeteggt teeggaeagt gtgegeaeeg 3841 gegeactege ggaactgett eecgaggtgg geeeggagee 3281 ccccccccccccccccccccccccccccccrrrcc ctggccgtgg acgaccgtgc tgcggcatct gtacgcgatg 2641 ccctcgcgct cggcaccgag cacatcgacg

3

gcacgggcca ccggggaact cgccggaggg atgctgggca 4320 tacggcggtc cgcggcggtc tgctggagga agaccccgac 4640 gtecegggee eeggggteet egGGGGGGG CGGCGTTGC 4800 ACGCGCAGCC GGGTGCAAGG GGCGGTGCCG ACACTGGGCG 4880 recensede cerecedea eccereces caccerree 5040 GGCIGCACCG TACGGGACAC CGAAGGGCGC ACCTATCTCG 5200 egcacaccet caegetegeg ecegeteteg egeceeegeg 4000 caggogotto tgogoacggt cogogaacco gtggtgatca 4080 cctgctgcgc ctcctggtgg agcaactgcg caccgtcccc 4160 ctccgccggg aacccgtact tcctcgtcca gctcctccgc 4400 teceggaega getggeeggg gtegtgetge aaeggetgte 4480 aggeegtetg ggaegaeetg gagaaeaeee gteggeeegt 4720 GAGGAGCCCC CATTGGACAC GTACGCAGCG GATACGTACC 4960 reedsecsen cesescent argrecace csercerse 5120 acgacgccga gctgcgacgg gccgccgccg tgatcctcca goggtogtgg agogoagttg ogaacggogt gtgatogaga → start cvm6par 4801 GCGCTCCCCG ACGCCGGGCT TGATCCCCCG GGCCAGCCGG 5121 ccececcec eageacceca ccerrcreer crcceccec 4241 gtcgaccggc gcgcgcggg tcctgctgaa cgccctggac 3921 ggcaacgggg acggtgcggg cgacggggac agcacccgg 4321 aggeceegga caccetecte gtaegggeee tgeacgageg 4881 GECEGCEGCC GTGGCCGGTC GCCGCCCCC ACGGCCCACC 4961 CGCGGTCCGG CACCCACCC GAGCCGCGTC CCGACGCACC 4001 ctccagagag gctcgtttca ccctgcacga cgccgtgtgc 4081 tgctggagga catggagcgg gccgacgcc cctcgctcgc 4161 ctgctgctcg tggtcaccac gcgcaccttc cggctcgcgc 4401 tegeteegge aggggetege egeegtegg gagaeggaga 4481 gagogtgoog coogcogtgo googggtgot ogacatotgo 1561 ccgtgctgcg ccatgaggga atcccgctgg agaacgtccg 1641 gaccccgggc ggctgaggtt cgtgcatccg ctggtccggg 5041 GAGCCGCGC CGGACCCGGG CGCCGAGGCC GCGTGGCTGC 4721 gtcccgttcc tccgcgctcg gggcgctggc cacggtctga stop cvm7par —

6320 5760 6080 CIGCGGGGC IGCCCGCCGI GGGGACGIC CGGCAACIGG 6160 ccecacccce crecceesce scacccrcs sercersac 6240 TGCTGATCCT GGACGAGGTC GTCACCGCGT TCGGCCGCAC 5840 GATCTGCTGG TGACCGCGAA GGGCATCACC TCCGGGTATG 5920 ACGTGAGGAG ATCGCGCAGG CCGCCGCA GCAGATGCGG 5280 ACAAGGCCAT CCGACTGGCC GCGCGCCTCA CCGACCTGGC 5360 ercececce accectace accecarces cracecase 5520 GCCCGGTGCT GCCCCATGTG CACCACCTCA CGCCGCCCGA 5600 GAGTACTGCC TGCGCGAACT CGCCCGCACC ATCGACGAGA 5680 CATGGGCGCG GGCGCCCG TCGTCCCGCC GCCGGACTAC CGCCGTGAAC GGGGAGACGG GGTTCCCGAT CGGCTTCACC ATCTCGACAT CATCGAACGG GAAGGGCTGC TGGAGAACGC CGCGCTCCCT GGTCCTCAAT CCGGCGCTCG TGATGGACCG GGCGAGGGCG TCGAGATCGC CCTGCGCATG GCCCGTTACT 5201 ACGCCICGIC GGIGCICGGA CIGACCCAGA ICGGCCAIGG 5761 reccecece receeeer ecrecerce caceerare TATACCGGTC ACCCCACGGC GTGCGCCGTC GCGCTCGCCA GGTGAAGGIG GGCGACCACC TCGCCGGGCG GCTGGCGGCC 6241 GCGCIGCGCG AGGACGCGGG CGICATCGIC CGGGCCACGC 5281 ACACTCGGTC ACTTCCACAC CTGGGGCACC ATCAGCAACG 5441 TCCACCACCG CACCGGCAGC CCGGAGCGCA CCTGGATCTT reseccess sesances ecsargares sesascess GGGGACCTGG TTCGCGGCCG AGCACTTCGG GGTGACCCCC 5921 recedence eccertere crenceade agereceda GCATGATECT CGCCGTCGAG CTGGTCGG ACAAGACGGC GETACGETGT CGGCTCGCC CGCCTACCAG GACGGGTTCG 5361 GCCCCAGGGT CTCCAGCGCG TCTACTTCAC CAGCGGCGGC CCCGIACCAC GCCGAGCIGI ACGACGCGA GGACGICACG

5

CACGGGACCC GTCGGCGAGC GGTATCCGAI GTCCCGTGTC 7040 GCGACGCIGA TCGGIGICGC CAAGGGCCCG GGIACGGGCC 7200 CACGGACGCC CAGGTGAGCC CCGTCGTCCT CGACGACATC 7280 GAACAGGICC IGGCGCGCT GGCGCTGGAC CIGGTCAGGG 7440 CTGCGGCGGC TGGCACCCGA CGGGCGGATC GGCGCGCCC 6400 GGCGCCGGG TCGGCACAGC GGCCGACCCG GCGCCTTCCC 6480 CGCCAAGCGC CCCGTGCCAC GGTGGGAGAC CGCCGCCCGA 6640 GGGTACGAGG ACGCCGCGA GGTGCGCCAT CTGGTGGCCG 6960 resececcea cecerceace secenciae cescestrer 7360 GGIGGGGIC ACCGGGCCC ACGACACCGA GCAGGCCGGG 7520 rescente ecerecer seresses recreered 6560 cercarcece receaserre ecececeer ecececeere 6800 eccedance cercectat GGGATCGCCC GGGCGTGGT 6880 CCGACTICGA CGGCGGGGG GCGGCGTGC TGGGCACCGC 7120 cceargeere ceretreece cagadeerre cecerecace start orf6par 6401 ccceccede eneaceagac cecesecce cacceses 6961 GGATCGICGA CIGCGACGAG AGGGAIGIGC IGAICGCCIC 7041 CGGGCCCATC IGCGGGGGGT GCGGGGCCC ITACCGGGTG 7201 CGGCGGAGCA GGACGACCGG TCGACGCTGG CGTTCTTCTG 7441 ACGTCGTCC GGACAGCGGC TGCGGCGGCG CCCTGGTCAC 6321 GGCCACGGCG GACGAGGTGG CGGACGGGCT GGACTCGGTG 6641 ceeeecece ceaecceec aacceaase easerceer 6721 ACGGTCACGC CGGGATCAGG GGGTCCCACG CGGACCTCGC 6801 TICACCCGIT CGCGGITCGC CGCGCCGAGT GIGCIGCICA 6881 GGTGCTGTCC GGCAACGCCA ACGCCGGGAC GGGCCCGCGG 7121 GGGCGCCCGT CCCACGATCC GGCGGGCGCG GTGCGGCGAC 7361 CGCCAACGGG CTCGCGGGCC GGGTGGACCT CGTCGCGTTC 6481 CGTITCCCGG CGCCTITICC GIGCCCCGGC GCCGITCCCG 6561 GCTGTGGCGC CGTTCCCGTT CCAGCGCGCT GTCGAGCCGC stop cvm6par



ATGCTGACGC CGTGCCCGCG CGCGTAGTCC AGGGAGTCGG 8480 cecerrerce ecerrerce cercercec cececece 8080 resrecece Geceracies rasaccastr cescecear 8160 GCCGGGGACA CCTCGACCAC GTCGAAGCCG ACGGGCCTGA 8240 GCGGCAGGCC GCCGACGTG CGCCGGATCT GCTCGCCGAT 8400 CICCGGGICC ACCAGGCCCI CITCGAIGGC CCAGCGGAAG 8560 TCTCCCGGGC GGATCACGAT CCGGGTCGGC GGCCGGGAGG 7680 CACCGCGTAT CCGCACGCG GCGAGGTGAC CGTCCATAIC 7760 rccaceecre ceaccrecre ecedecrace cececerces 7840 GCGACCGCGA GGGCGCGGGA GCGCAGGGAA CACGGGAGCG 7920 recereceer erecedede Geceraece cacceerece 8000 GGACAGCCCG CCGGGGCCG GTGTGCCGGT GCCCGGGGCG 8320 regrercecr erececerce AGGIGCAGGA CGCCGACCCG 8640 ccecegreca ceccceeca ccceacrese ceccesrcec 7600 7841 cecceecies eciercies cesececic cesecesics 7921 GGCCCGGIGG ICGAICGGCC ACCGGGCCCG CICCCGICGI 8161 CTCCGCCGCC AGCAGGGAGG TGATCCCCGA CGGGTCGTAC 8241 GCTGCCGAC CACGTCGAGC AGGGTCAGCA CCTCGCGCGA 8401 eccececer eaececces reagresse secerance 8481 GCCGCGGATT GTGGCCGCGG ATGCCGACCT GGACCAGGCG 8081 GGTGGCAGGG GAGAGTCCAC CGGTGCCGAC GCGGGCGACG 8561 GGGGTGCCGT GGTGGTAGGT GCCGCCGTAG ACGGGTGGGT 7521 CGCGTGGGCC GGGCGGTGGT CGACGCGCCG TCGCTGAGGG 7601 CECCETGECE GETGEACACG GGGACGAAGG CCCCGGCCGG 7761 GACCTCGGTG TCCCGGGCCG GGCGCCCGGC GCGTTCACGG 8001 CGGCGAAGTC CACGGCGCTC TCGGCGTCCA CCGCGTCCAC 8321 TACGCCGGGT CGACGACGTC GAIGTCGACG GAGACGTACA 7681 rerrecede ececedede essecede especeder



AGCGAGIGGT CCCCGCCCAG CATCAGGAAC GCGTCGTIGC 8720 CGCCGGTTGG GCGTAGCGCG GGGAGACGGC GGTGGACCC 9040 AATCCCGTTC CCGCGCCCGC GGCGCCGTCC GGGCCGCGGC 9200 GITGCCGCIC IGCGGGCCGG IGCCCGCGCC CACGCCCGCI 9280 CGGAGCGCCG CACCGTCTCG CCGAAGTCCA CGTCCTCCGG 9440 eccargecec cerreacec cercacerce recedenes 9520 GCCGGACCCC TCGTGGATGC CCAGCTTGGG GCGGCCCACG 9600 CCCACTIGIC GGIGCCCGC CGCCGTIGA GCCCGGGITC 9680 GGGTGGGTGG TCCACTTCCC GGCGATGCCC GCGAGGACGG 9760 CGCCAGGICC ATCGAGAAGG GGCIGAGGIC GAIGICGCCC 8800 GGTCGATGCC GACGCCGTGG ATCAGGCTGG ACTCGTGCCG 8880 TACCGACGCC CGGCCACCCC GTGCGGGCTC CCGTTCCCGT 9120 reccerrere eccacceere ccerrerece cecrearace 9360 GIGCCICCGI CGIACGGGC GCCGACGACC ACCACGICAI 8641 eccerecce ecerecacee cececaeec ecccaeeae ACCACCGGC CCTGGAGCCT GAGCCTGCGC ACCGCGTCGA 9601 ercreeces scascasses saasasses recesaaca 8721 GITCCAGGAG CCGGGTCAGG GCGACCGICG CGGTGTCCAI 9201 TECCCCTCCC TCCGAGACCG CTCCTGCCGT TCCTGCGGCC scaccercce cecceccec Gereccerre cceccecces rcccrrceec eageageagr cegerceace cecreerer 9681 GAGGGAGACC AGCGCGTCCA GGACCGCGCG GTCCCAGTAC 8881 GATGGCGCGC GCGCGAACC GCGCGCCGGG CCGGTAGCTG 8961 GCCCGATCGG GTCGGGCCGG TGCCGCAGCC GCATGAAGGT 9041 creeccente codecearc ceeccreer cocerroce 9121 GCCGACCCCC GTTCCCGAAC GGGCTCCCGT TCCCGCGTGG 8801 CCGTCGACCA CGTCGATCCG GTCGAAGACC CCTGGGCCCC 9441 CGCCACCGTG TCGATGACCA CCGCGTCGTA CAGGCGCCGT

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9840	9920	10000	10080	10160	10240	10320	10400	10480	10560	10640	10720	10800	10880	10960	11040		
GGCCGTGCGC	TGAGGAIGCG GAGCGGCCCG GIGTCGAGCC GCCGGTAGAG 9920	AGTICCCIGA	GCCCAGGTGG ACGGCGACCG AGCGGGCCGC GTCGAACTCG 10080	GIGCCAGGGC CGCCGIGTGG GCGGCGACTC CCCCGGAGTC 10160	AGGCGTTCGC	GGAGAGCGGG GGTGTCCAGG TGCGGACCGC CCTGGCGGTG 10320	CGGCGGGAC CCGGCAGACG CCCGCCGCC CCGGCGCGT 10400	AGCCCCGTCA	GGTGGCCGCG ACGTCGCGC CGGTGGAGGC GTCGGTGAGC 10560	GECCCCAGCG CCGCCAGCG GCCAGCAGCA GITCGGCGIC 10640	AGCAGCCGGA	CACGGCCGIT CCGCICCAGA GCGGGIACGC GGIGCCGICG 10800	CGCTGCCGGG TTCGGAGTGA CCGCCGGGC CGCCGCCGGG 10880	State Silyal Agercegee Cegental Bandrestee redacegree 10960	CGGCCGAGTC		
ACCAGAGCGA	GTGTCGAGCC	CGCCCAGGGC	AGCGGGCCGC	GCGGCGACTC	ceccereece	TGCGGACCGC	ວວວອວວອວວວ	оесессестс	севтесмеес	GCCAGCAGCA	GCCCGCCAGG	GCGGGTACGC	ວອອອອວວອວວ	GAACTCGTCC	CAGGAACGGG		
TCGTCGAGGG	GAGCGGCCCG	CGGCGGCGAC	ACGCCGACCG	ceccereres	GGGTGCGGAC	GGTGTCCAGG	CCGGCAGACG	тсесстсеет	ACGGTCGCGC	cceccaesce	TGTACAGCTC	CCGCTCCAGA	TTCGGAGTGA	CGGCATGGT	GTACCTCGAT		
CGCGATCTCG	TGAGGATGCG	GIGATCICCG CGGCGCGAC CGCCCAGGGC AGIICCCIGA 10000	GCCCAGGTGG	Greccagesc	CCGCGCAGCC GGGTGCGGAC CGCCGTGGCG AGGCGTTCGC 10240	GGAGAGCGGG	сесевевьс	GCCAGGGICT TCGCCTCGGT GGCGGCGCTC AGCCCCGTCA 10480	GGTGGCCGCG	GGCCCCAGCG	TCGGCGCGGT TGTACAGCTC GCCCGCCAGG AGCAGCCGGA 10720	CACGCCGTT	CGCTGCCGGG	AGGTCGGGGC CGGGCAT	TAGGCCACCG GTACCTCGAT CAGGAACGGG CGGCCGAGTC 11040		
9761 GGGACAICTC GIIGAGGCCG ICGAAGCCCG CCAIGICGCC CGCGAICTCG ICGICGAGGG ACCAGAGCGA GGCCGIGCGC 9840	CCGTACCCGG		rerececeer	cerercces		SCAGCGCCCG	AGGGGGGTCC		ceccarecac	AAGGCCCCGG	rccercaec	Secceneger	AAGCGGGGTG	rccgracace	CTGGAAGTCG		
TCGAAGCCCG	9841 CGGTGCATAC CGCCGAGCGG GATGTCGGCG CCGTACCCGG	9921 GGCGACGAGC GGCAGCAGGT ACTCCAGGAC CGTGGGGTCG	10001 CGAGTTCGGC CGAGTGGGGC CGGATCTCGC TGTGCGCGGT	10081 TCGGACACCT CGGTGCCCAT CGACACGGAC CGTGTCCCGG	10161 GATGCCGCCG GACAGGACGA CGGTGGGGGC CGCCTCCCCG	10241 CGACCAGGTC CACCGCCTCC CGTTCGCCGG GCAGCGCCCG	10321 ATGTCGGAGC CGCCGACTCC GTGCAGGAGG AGGGCGGTCC	10401 STGGGTGCCG GACAGGCCCA GCGGCCGGCC CGGCTCGTGC	10481 CGTCGGCGCG CAGCCACAGC GGTACCGAAC CGGCGTGGTC	10561 AGTGCGCCGA ACCGTCCGTT CAGGAGCCGG AAGGCCCCGG	10641 GCCGAGGGCG GCAGGAGC CGCCGAGCGC TCCGGTCAGC	10721 CCTGGCCGTC GGCGACCAGG ACGGGCGGAC GGCCCAGGGT	10801 TGCACGGGGA CATGGGTCC GCGGACGGCG AAGCGGGTG	10881 GCGGCCTCG GTGCCGATGC GCACCCGGAA TCCGTACACG	end orizpar <u>reagnagece</u> aggeceges aacceccea cresaagres		
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9761	9841	9921	10001	10081	10161	10241	10321	10401	10481	10561	10641	10721	10801	10881	10961		



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GGGAGCGCTG GTGTCCGAGG TTCTGGTACA GCTCGATCAG 11200 AGGCCCAGGC GCACGCCGT CTCGATGTCG GCGCTGTTGG 11280 GCCGGGCCGG GCGATCTGGG CGGCCATGGC GCCGGGCAGT 11360 CGTACGGCTG GTCGGACTTG GCGAAGAGCA CGCCGTAGTG 11440 AGGACGGAGT TCATGCAGTC GATCACCTGG TGGACCCGCA 11520 GIGGICITGG CCCGGCCCCG CGICCACATG GAGGGGCGCA 11760 GGCGGGGCCG AAGATCTCGT CGAGGCCGG GTGGCCGAGA 11840 GCGCTGTCGA CGAGGTTGAC GATGTCCTCG CCGCGTTCGA 12240 GGTGGCGCGG ACGCCTCGC AGCCGTTGGC CTCGGCGAGC 11120 GACGCGGCG CGCAGGCCGC TGAGGTCGTG CCGGGTCTTG 11600 11601 GGGGCGAGGC CCGAGGTCGC GTCGTCGAGG GCGGTGACGA ATTCGGCGAC GTTGGTGACG ATGTCGATGT CGGCGCGGAA 11680 GCGTCGACGG CCCCGGCGCG GATGACGGCG CTACCGACGA 12000 CICGICGAGG CGGGGGGCC AGICGGCGTC CAGGGCGTGG 12080 CGTTCAGCTC GGCGCCGAGG AGGTCGACCG GCAGGCTGAT 12160 GETGETCETG CGCAGGACG CCCTTGGCGG TGTAGGTGGT 11041 CGCCCCCTT GGTGAGGCCG GCGAGCAGCG AGGTGCGGTC 11921 GACGACGGG ATGTTCAGCC GCTCGGCGAG GGCGCGCAGG 11121 TGGACGAAGT CGACGCTTCC GAAGCCGACG GCGGGGGCGT 11361 CCGTAGCCGA AGCTGGAGCA GCCCGCGGAG GTGAGGAATC 11441 GCGGAAGAAG CCGATGTCGC TGACGAAGGT GCCGTTGTCG 11521 reccercerc gracresers sceresses scarresse 11681 CAGCICCGGG AICGGGITGA CCICGGGGG GACCCGGACC 11841 ATGCCGTCCA TGTAGCCGCT GATGGCGCCG TAGTTGAGCG 12001 CGAGGAGGG GTTCTCGGCC TCGCGCACCA GCTCAGCGGC 12161 GAAGCTGGGA CCCACGGGCT CGATCCGGCT GTTGAGGACG CGACGACCAT GACGATCGGC 11281 AGTGGAAGCC GCCGTCGCCC GCGATGAGGA AGACGGGCTC GTAGTCGTAG CCGATCGCCA GGAGGAGGTC 12081 ereccerec ccceaaccae eccecerce ereceerec 11201 GCCGTTGCGG TCGTTGTTGA 11761 GGTCCTCGGC



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GCTGTCCAGG CACTGGTGGG TGACGTTGGG GTAGCAGTCG 12320

13313 GCACCGGGCG GTGCGCACCG GGTGGCGCAC ACCGTGGGTG 12720 GACGCCGTCA ACCGCTATCC GTACTCCGAG ACCCCGGTGG 13040 ACACCGTGCT GACCGCCCTG ACCCCGCCCG GCGGGCGCGT 13200 13201 CCTGGTCCTC GCGCGGAGG ACGGCGGCCA CTACGCCACG GTGACGATCT GCCGGGGCTT CGGCTACGAG GTCGAGTTCT 13280 CICGICGAAG AGAAIGGCGG ACGCCICCCG GCCGACGACG 12560 GCATGGCTTT CGCGGTCGTG GTGGCCATGG AGATCTCCTT 12640 GGACGCCCGG CIIGGACAGA AIGGGCAAGG CGCGIICAAG 12800 CGTCCGGCGC CGACGGTCTC CATCCGATTC CGTCCCCTTC 12880 CGITGGAGCG CAAGCCCAGC CIGAAICTIT ICCCCAICGA 12960 GTACTGCGAG GACCTGGCCA AGCGCTTCTT CGGGGCGCGC 13120 ITGGIGAICC GGGCGAGGAC GICCGCCAIC ACCCCGGCGG 12480 GGTCCAGGGC GGAGGTGGCG ACGCCGGTGG CCAGGTTGGT 2 start of orf2par 4 ଓ 20 12961 GAACCGGCTG TCGCCGCGCG CCAGTGCCGC GCTGGCCACC 13121 CACGCCGGTG TGCAGTTCCT GTCCGGTCTG CACACCATGC 12641 CGCATCGGAC GGGCGCCGGG ATGGCGCCCC GGAAAACGCG 12881 CGTCCACCGA TCCGAGGAGA ATCCATGGAT GTCCTGGCCG 13041 CCGTCTACGG CGATGTCACG GGGCTGGCCG AGGTGTACGC 12321 TACGACTCGG ACTGCGCGGC CAGCGCGATG ACCGAGCTGC 12401 CATGCCGGGG CCCAGGGTCG CGAAGCACGC CTGGGGGCGG 12561 CCGAATACAT GGTCGACACC GTACTGGTGA AGACGTTCCA 12801 GCATGGCGTC CATCGTCCTC GTGGCGCTTT TCGTGAAATC 12481 TGAACTCGTG CCGGGTCAGG ACGAAGTCGA GTCCTTCGAC 12721 GIGGCGTIGC CACIGIGGG AICGCCICIT GGCGGCGGIC 40 12241 GCTGGACGCT GAACTTGGTC AGCGGGCCCA TCACGGCGGT 13281 TACCTTCGAC CGCCGGACAC CTGGAGATCG ACT | 10 | 20 | 30

